Refer to: Campos-Outcalt D, Janoff E: Health care in modern Cuba (Medicine in Perspective). West J Med 132:265-271, Mar 1980

Health Care in Modern Cuba

DOUGLAS CAMPOS-OUTCALT, MD, *and*
EDWARD JANOFF, BA, *Tucson, Arizona*

An extensively organized, centrally controlled system, aimed at equalizing and improving the distribution and quality of medical services according to population and geography, characterizes the modern Cuban health care complex. Facilities of increasing sophistication are located in urban areas while an expanding series of ambulatory, multipotential polyclinics attempts to provide most health services in both urban and rural settings.

Maternal and child care, immunization programs and other forms of preventive medicine represent major priorities for expenditures. Occupational health is increasingly understood as a valuable resource, and medical professionals on all levels are being trained in significant numbers for Cuba and its allies.

MODERN CUBA is a densely populated, racially diverse island nation of 9 million people where approximately half the population is younger than 25 years old. Some 40 percent of the Cubans are white, 27 percent are black and the rest are of mixed descent.

The country has experienced many major, well-publicized political and socioeconomic changes in the last 19 years. Prominent among these have been the advances in health, education and social conditions, all of which are considered to be mutually interdependent. Even though Cuba is still a developing country, the government has invested heavily in the medical system in an attempt to mold a strong, productive and grateful citizenry. The planning has been geared to provide effective, accessible health care to both urban and rural areas.

The information contained in this report is derived from a review of available literature about medical services in Cuba. The authors also participated in a two-week trip to Cuba, organized by the American Medical Student Association (AMSA), the purpose of which was to observe the organization and evaluate the goals of the Cuban health care system.

Background

Before Fidel Castro's revolutionary government assumed control in 1959, Cuban health care was delivered by a variety of disparate systems. The government maintained facilities for the care of tuberculosis, leprosy and syphilis as well as hospitals for the poor; provided some maternal and child care, and dealt with public health problems. The military had its own hospitals as did larger

From the University of Arizona College of Medicine, Tucson.
Dr. Campos-Outcalt was a fourth year medical student and Mr. Janoff a third year medical student when this paper was submitted. Dr. Campos-Outcalt is now a resident in family practice.
Reprint requests to: Edward Janoff, 3750 N. Country Club, No. 5, Tucson, AZ 85716.

companies and a few religious groups. A series of "mutualistas," an early form of health maintenance organization, were also becoming an increasingly successful enterprise. Havana, the capital, with 22 percent of the population, supported 65 percent of the physicians.[1]

The Present Health Care Structure

The present system has shifted control away from the private sector. All services, training, public health and epidemiology are now centrally directed by the Ministry of Public Health (MINSAP). The goal has been to establish a set of uniform national objectives and standards for health care, and to try to implement these services as equally as possible in all parts of the island. A belief in the ultimate value of primary care and preventive medicine has helped to shape the structure and function of the Ministry.

Figure 1.—Most children in Cuba are members of organized youth groups. These boys belong to the Pioneers, a group that monitors and controls the ballot boxes on election day. (Photograph: E. Janoff)

Figure 2.—A billboard sponsored by a Committee for the Defense of the Revolution (CDR) in Havana. In the absence of free enterprise and, therefore, advertising, most graphic designs are political. (Photograph: M. Boehnert)

There are four levels of care available. The National Institutes carry out highly specialized procedures, such as kidney transplants and some heart operations, and conduct research. Provincial hospitals provide subspecialized tertiary care. Regional and municipal facilities offer secondary specialty care (such as most general surgical operations). Each level has a corresponding administrative and statistical counterpart. The national system of statistical monitoring is also very important in the formation and evaluation of the health program.

At the very core of the Cuban health care system is the fourth level or basic functional units—the polyclinics. These offer outpatient services to 25,000 to 30,000 people within a designated geographic area. The health team approach uses doctors, nurses, psychologists and a broad assortment of technicians. There is a continuing debate about what kinds of doctors should provide first-contact care, but the present system offers specialists in internal medicine, pediatrics, obstetrics-gynecology and dentistry. General practitioners are more often found in rural areas. A family file, with individual records included, is maintained to promote integrated, continuous care. The polyclinics have radiographic equipment, laboratory and some counseling services available.

The preventive medicine programs are centered around the polyclinic. Community involvement is crucial to the success of these programs. All aspects of Cuban life are highly organized—most children, for example are members of organized youth groups (Figure 1)—and this extends down to the level of residential blocks which are represented by the Committees for the Defense of the Revolution (CDR). The CDR's began in 1960 as local mechanisms to suppress counterrevolutionary activity (Figure 2). Since then, their role has expanded and they now also seek to improve interaction among parents, children, school, work, the health care system and the government. The representatives on CDR's are people elected locally whose duties now include such things as making

sure women go for prenatal visits and Papanicolaou tests, soliciting blood donations and promoting mass immunization programs. In exchange for these services, the polyclinic staff gives lectures concerning common problems of women and children and about prevalent diseases, sanitation and environmental hazards.

Polyclinic administrators meet monthly with CDR members, representatives of factories in the area served and with other public groups such as the labor unions, the Federation of Cuban Women (FMC) and the Young Communists League (UJC) to discuss any problems with the services. Such problems may include long waiting times, discontinuity of doctor-patient relationships and equipment shortages. Public opinion carries so much influence that medical personnel often find their decisions preempted by popular concerns. In fact, national, provincial and area health commissions, which are responsible for planning the goals and priorities of the Ministry of Health, all have representatives from these mass organizations.[2]

Although the number of hospital beds has increased since 1959, the total number of hospitals has declined because MINSAP has centralized hospital facilities while decentralizing ambulatory care. Rural hospitals and polyclinics, on the other hand, have increased dramatically in quantity. The attempt has been made to balance rural and urban availability, to stress prevention over cure and to substantially increase the number of health care professionals.

Medical Education and Health Manpower

Premedical education in Cuba consists of seven years of primary school, three years of secondary education and three years of baccalaureate studies. Admission to medical school is competitive, with acceptance based on academic records in math and sciences, political orientation and a history of volunteer work in public service. The government limits the number of medical students to 20 percent of university enrollment. In recent years roughly 50 percent of first year medical students have been women.

The medical school curriculum consists of two years of basic sciences, two years of clinical sciences, one year of clinical externships and one year of rotating internship. During the first two years of basic sciences other subjects are studied, including history, Marxism, physical education, economy and medical ethics. In addition, one day a week is spent working in a polyclinic and one month a year is devoted to labor in the sugar cane fields or in a polyclinic. Medical research is conducted at several research institutes and is not interrelated with the medical education system as is the case in the United States.

The Hippocratic oath is no longer used in Cuba. Instead medical graduates take an oath that calls for the following: (1) renunciation of private practice and agreement to serve in a rural area; (2) repaying the people, through service, for the opportunity of gaining a medical education; (3) promotion of preventive medicine and human welfare; (4) continuous striving for scientific excellence and political devotion; (5) proletarian internationalism, and (6) defense of the Cuban Revolution.[3(p45)]

Three years of service in a rural area are required of all medical school graduates, after which residency training in 38 specialties is available. Estimates of the number of physicians entering specialty training after rural service vary from 30 percent to 80 percent.[4(p417),5(p846)] The number of residency positions available in each specialty is controlled by the Ministry of Health according to the needs of the health system. At present there is not a specialty of family practice in Cuba.

Most Cuban medical students accept without complaint the aspects of their educational system that many in the United States would find oppressive. Productive physical labor is accepted as an important part of their education; mandatory rural service and controls on the numbers of residencies are seen as necessary to meet the needs of the people. The concept of charging patients to see physicians is viewed as totally foreign. On the other hand, no tuition is charged to obtain a medical education and many students are paid an allowance while in school, according to need.

Continuing medical education (CME) is primarily the responsibility of the National Center for Information on Medical Sciences (CNICM) which publishes, for a number of specialty fields, review journals containing abstracts of articles from journals from around the world. The CNICM also publishes journals containing original articles by Cuban investigators, maintains a national system of medical libraries, collects information on specific problems in response to requests from individual physicians and issues booklets on topics of special interest.[3(p60)] In addition, several seminars on current medical advances are held continuously throughout Cuba, and all physicians are

Figure 3.—In the major obstetric hospital in Havana, as in most hospitals, newborns are returned to their mothers within four to six hours. (Photograph: M. Boehnert)

required to visit Havana periodically for CME courses.

Before the revolution there were approximately 6,300 physicians in Cuba, 65 percent of whom were located in Havana.[3(p51)] It is estimated that in the first few years after the revolution at least 33 percent of all physicians left the island. However, the departure of doctors did not begin with the revolution. Up to 14 percent of medical graduates left the country each year for the United States or elsewhere, but the process accelerated considerably soon after the revolution.[3(p51)] Rapid steps were taken by the government to increase the number of physicians so that by 1970 some 5,600 new doctors had been trained. By 1968 there were 7,500 physicians in Cuba, 40 percent of whom were located in Havana. At present, more than 1,000 physicians graduate each year. Besides meeting its own health manpower needs, Cuba supplies doctors to assist 18 other socialist countries.

As of 1971 there were approximately 200 physicians in full-time and 700 in part-time private practice while being employed part time by the government.[3(p53)] Since 1965 medical school graduates, as has been mentioned, have renounced private practice as part of their oath. Physicians who were in private practice before that time have been allowed to remain so if they desire. As an incentive to work for the government health service, private physicians have been offered salaries higher than the average. Currently, physicians in their first year of practice earn 250 pesos a month and physicians who are at the highest level of specialty training and status earn 750 pesos a month. The average Cuban worker earns 150 pesos a month.

Maternal and Child Health

Maternal and child care has assumed the highest priority and, therefore, is allotted the most funds in order to assure the highest possible number of healthy children. This priority also reflects an increased emphasis on the equality of women, as documented by law and equal wages.

Breast cancer is a leading cause of female mortality and radical mastectomies are the most common treatment. Breast self-examination, however, is not taught. Cuban physicians would prefer to do Papanicolaou tests for cervical cancer on a yearly basis; at present, however, they are done biannually to insure availability to all women.

There is no defined national policy on population control and all contraceptives are available to women over the age of 15; intrauterine devices are the most popular form. Abortions are generally available in the first trimester to prevent the morbidity associated with illegal procedures, although this service is not offered at every hospital.

Prenatal care is strongly emphasized. Classes are given, usually through the local polyclinic, on nutrition, birth techniques, exercises and psychoprophylaxis. Mothers attend an average of nine prenatal visits per pregnancy. Amniocentesis is being used with increasing frequency. In outlying areas, these services are being carried out by rural hospitals and "hogares maternos," a type of home clinic where high-risk mothers may spend up to several months before labor.

Nationally, more than 97 percent of all children are delivered in hospitals.[6] Cuban physicians discount the value of home deliveries because of the expense, lower quality of available neonatal care and the problems posed for public health.

Women are encouraged to remain active during their labor if possible and often rocking chairs are provided. Little fetal monitoring equipment is available. Episiotomies are done with administration of a local anesthetic for most first births; general anesthesia is not used routinely. Cesarean sections are carried out in 7 percent of first deliveries, with an overall average of 14 percent. Forceps are used in 5 percent of cases. Infant mortality was recorded to be 26.1 per 1,000 live births in 1974 as compared with 18.5 in the United States and 81.6 in Guatemala.[7(p691)]

Newborns are returned to their mothers within

four to six hours of birth (Figure 3) with a card showing what inoculations will be required and when. Most children are breast-fed and all mothers contribute to a milk bank. The average hospital stay is five days postpartum. There is no out-of-pocket expense to patients or their families.

Diabetes is a special problem in Cuba and is one of the main areas of clinical research. Programs are available for mothers and children at high risk for this disorder.

Women are given 12 half-days off during pregnancy for medical attention. They have 6 weeks off before the birth and 12 weeks after, all with pay. Day care centers are available because many women work, although there is a shortage of such facilities.

Many women who served as village midwives in the past have been given additional medical training and are now incorporated into the health care team. Nurses can specialize in obstetrics with two years of additional training, and in neonatology, anesthesiology or intensive care, with one year of further training.

Psychiatric Care

Treatment of psychotic patients in Cuba consists of inpatient care, occupational therapy and, when possible, helping patients to return to independent lives. This process involves the following stages: (1) total hospital confinement, (2) weekend trips outside the hospital on a pass, (3) working outside the hospital but returning to sleep at night, (4) moving to a halfway house with periodic hospital visits and, finally, (5) discharge with follow-up visits at a polyclinic. There are several psychiatric hospitals in Cuba, the largest is in Havana and houses 2,500 patients. A team approach to therapy is used involving psychologists, sociologists, nurses and psychiatrists.

Neuroses, depression and personality disorders are treated as outpatient problems and are handled at polyclinics and municipal hospitals. Nearly identical pharmaceutical agents are used in Cuba as in the United States, except that all medications are ordered by generic name. Electroconvulsive therapy is used for the same indications as in this country.

As part of the national plan to combat mental disorders the Cuban government conducts periodic public education campaigns on mental illness. As part of this campaign, a yearly sports competition is held for mental patients. Before these events, psychiatric patients carry Olympic-like torches through the countryside, stopping at towns they pass through to give talks on mental illness. This is an attempt to destroy the many myths concerning mental illness and to foster understanding and acceptance of psychiatric treatment among the people.

Occupational Health

Occupational safety and health is another area receiving a high priority from the Cuban Ministry of Health. Occupational health services and facilities are integrated into the general health care system with polyclinics serving as the centers of supervision.

Full-time technicians, with training in occupational safety and health, work in the polyclinics and are responsible for the safety and health of factory workers in their health areas. Regular inspections are made (every three months in hazardous work places) and periodic general checkups are provided to the workers. Employees at factories without onsite medical facilities are taken to their area polyclinic for any medical problems that arise while on the job. Some of the larger factories have health facilities staffed by nurses or, less often, by a physician.

A second major component of safety surveillance is provided by the members of the work place safety and hygiene committee. This is one of 13 committees at each work place responsible for various aspects of worker activity. Members of the safety committee are responsible for maintaining safety standards, insuring that workers receive periodic checkups and needed immunizations, and meeting with other safety committees to discuss ideas and to provide information for higher levels of decision making.

At the national level, occupational safety and health standards are set within the Ministry of Health, and a national institute conducts research on occupational and environmental health hazards. Occupational health is a specialty requiring residency training and, similar to the situation in the United States, few physicians are practicing in this field at present.

Cubans work eight hours a day and have a month of vacation per year. There is no unemployment.[4(p403)] As mentioned earlier, generous leave is provided for women workers during and after pregnancy. It is not uncommon for work places to have full-time readers who read from

newspapers and other publications, chosen by the workers, over microphones.

Statistics

To understand the status of health care in Cuba it is important to look at how the organization of the health care system and development of health care resources have resulted in improved health for the Cuban population.

During the past decade in Cuba, poliomyelitis, diphtheria and malaria have been eradicated.[8,9] There has been a substantial reduction in the incidence of infectious diarrhea (the mortality being an eighth in 1975 of what it was in 1962[10]), as well as of tetanus, tuberculosis and all waterborne diseases. The mortality for pertussis is the second lowest in the western hemisphere and, for tetanus, the third lowest.[9(pp20,21)] Occurrences of chicken pox, measles, mumps, typhoid and infectious hepatitis have been irregular. There still remains a problem with certain parasitic infections.[8] Table 1 compares the incidence rates of a few diseases in Cuba with those in certain other countries in the western hemisphere. It can be seen that while Cuba is considered an underdeveloped country economically, it compares favorably with developed nations in certain health statistics.

The average Cuban visits a physician 4.1 times per year and a dentist 0.7 times a year.[10] Approximately 98 percent of deliveries occur in hospitals, and 60 percent of the population has running water, compared with 68 percent in Argentina and 38 percent in Bolivia.[9(p64)] While one might suspect that improved health statistics in Cuba are due to underreporting, the reverse appears to be the case. Along with increased emphasis on delivery of health services has come an increase in the reporting of health information. This is evidenced by the fact that in 1956, 53 percent of deaths were certified by physicians compared with 98 percent in 1967.[3(p66)]

The incidence of gonococcal infections, for example, is (see Table 1) 469.3 in the United States versus 47.0 per 100,000 in Cuba in 1975. These figures are accepted by the Pan American Health Organization. There appears to be easy and acceptable access to health care, especially in urban areas where gonorrhea most likely will be found. However, we observed no major emphasis on sex education and official representatives tended to deny that social problems such as alcoholism, child abuse and prostitution are still major concerns. Although social responsibility and peer pressure are significant external influences in Cuba, we are not in the position to comment on whether a major difference in social mores is responsible for this statistical gap or whether such a gap does indeed exist.

Infant mortality has decreased from 37.6 per 1,000 live births in 1964 to 26.1 in 1974.[8] The mortality among preschoolers (children 1 to 4 years of age) was cut in half between 1962 and

TABLE 1.—*Incidence* of Select Diseases in Five Countries in the Americas for 1975†*

	Tuberculosis	*Syphilis*	*Gonococcal Infections*	*Poliomyelitis*	*Measles*	*Diphtheria*	*Typhoid Fever*
Argentina	58.5	45.0	50.2	0.0	103.2	1.0	5.6
Bolivia	176.0	42.8	31.6	0.5	68.1	4.0	13.8
Cuba	14.2	47.6	47.0	0.0	115.4	0.0	4.1
Guatemala	104.2	14.6	45.2	0.7	25.1	0.3	17.1
United States	16.0	37.7	469.3	0.0	12.6	0.1	0.2

*Rates per 100,000 population.
†From Pan American Health Organization.[9]

TABLE 2.—*Five Leading Causes of Death in Children by Age, 1973**

1-4 Years	*Rate (per 100,000)*	*5-14 Years*	*Rate (per 100,000)*
Influenza, pneumonia	19.7	Accidents	12.3
Accidents	18.6	Malignant tumors	6.7
Congenital anomalies	13.2	Congenital anomalies	3.2
Malignant tumors	10.1	Influenza, pneumonia	2.3
Diarrheal diseases	6.3	Heart disease	1.6
Other	52.1	Other	18.9
TOTAL	120.0	TOTAL	26.1

*Adapted from Corteguera et al.[8]

TABLE 3.—*Principal Causes of Death in Cuba, 1975**

Condition	*Rate (per 100,000)*
Heart disease	148.3
Cancer	98.2
Cardiovascular accident	50.5
Influenza, pneumonia	40.5
Accidents	32.7

*From Ministry of Health of Cuba.[10]

1973 (from 2.1 deaths per 1,000 to 1.2).[8] Table 2 illustrates the five leading causes of death in children in Cuba in 1973 and Table 3 lists the principal causes of death throughout the population in Cuba in 1975.

Conclusion

The statistics in Tables 1 through 3 point out the remarkable progress made by the Cuban health system during the past 20 years. This progress is all the more remarkable when one considers the past loss of large numbers of health professionals, and the continuing economic embargo by the United States that contributes to shortages of medicine and technology. The guiding philosophy of the Cuban government and most health professionals, which has been the driving force behind these gains, is best stated by Milton Roemer:

> The rationality of the entire Cuban approach, in accordance with the needs of the people rather than the personal convenience or wishes of the health professions, is its most important characteristics."[3(p17)]

Yet, statistics also point out what Cuban physicians and other health workers readily admit, that there is much left to be done.

REFERENCES

1. Navarro V: Health services in Cuba—An initial appraisal. N Engl J Med 287:954-959, Nov 9, 1972
2. John R, Kimmelman D, Haas J, et al: Public health care in Cuba. Social Policy 1:41-46, 1971
3. Roemer MI: Cuban Health Services and Resources. Washington, DC, Pan American Health Organization, 1976
4. Navarro V: Health, health services and health planning in Cuba. Int J Health Serv 2:397-432, 1972
5. Butler W: The undergraduate education of physicians in Cuba. J Med Educ 48:846-858, Sep 1973
6. Kaiser IH : Obstetrics in Cuba, 1974. Obstet Gynecol 49:709-714, Jun 1977
7. World Health Statistics Annual, 1977. Geneva, World Health Organization, 1977
8. Corteguera RR, Garcia HF, Lazo RV: Advances in pediatrics and child care in Cuba, 1959-1974. Bull Pan Am Health Organ 10:9-24, 1976
9. Report of the Director, Quadrennial, 1974-1977. Washington, DC, Pan American Health Organization, 1978
10. Salud Publica, Cuba 1976. Havana, Ministry of Health of Cuba, 1978

Salvaging a Severed Member?

WHAT MUST YOU TELL any lay organization that you have opportunity to talk to about helping to salvage a severed part of the body? You remove whatever gross dirt there is. You then place that amputated part in a plastic bag, squeeze the air out, seal it with a rubber band, and place the plastic bag in a chest that you've put ice cubes in (preferably with a little bit of water with the ice cubes). Then you have probably bought hours of time because that part now has the metabolic rate lowered and you can replant it at a much later date.

—HAROLD E. KLEINERT, MD, *Louisville, Kentucky*

Extracted from *Audio-Digest Orthopaedics*, Vol. 2, No. 10, in the Audio-Digest Foundation's subscription series of tape-recorded programs. For subscription information: 1577 East Chevy Chase Drive, Glendale, CA 91206.